the astrogram

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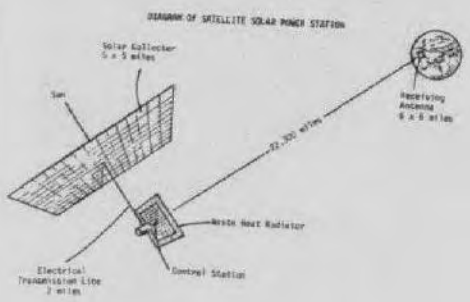
August 3. 1972

National Aeronautics and Space Administration • Ames Research Center, Moffett Field, California



It may not be long before we raise our fists to the sky and curse a sick satellite when the electricity goes off. The Earth's power needs [illegible] soon be fulfilled by electrical [illegible]gy beamed down from large satellites orbiting at synchronous altitudes.

Under a $197,400 NASA contract, A. D. Little, Inc., of Cambridge, Mass., acting for a 4-member industry team will conduct a six-month feasibility study for the satellite solar power station.

Such a station would convert solar energy to electric power in space and then transmit the power via a microwave beam to Earth for distribution and use.

NASA is investigating the concept for comparison with other methods of producing large amounts of power (megawatts) on Earth from the Sun's energy.

Special Procedures for Retiree's Claims

With the first wave of an anticipated 40,000-plus retirement claims already being processed, the Civil Service Commission has set up special operating procedures and temporarily bolstered its staff to handle the massive caseload.

Andrew E. Ruddock, Director of the Commission's Bureau of Retirement, Insurance, and Occupational Health, outlined special steps being taken to handle the load and the procedures involved.

"We will make every effort to insure that claims are handled promptly and expeditiously," he promised. "One of the most important things in a situation like this," he pointed out, "is that each employee knows what to expect, how long it should take, and what to do in case something goes wrong."

Stressing that the time frames are approximate, Mr. Ruddock described steps and procedures that occur in the processing of a retirement claim.

Records of an employee's service, salary, and retirement deductions are maintained by his employing agency. They are forwarded

(Continued on Page 2)

MARS' NORTH POLE . . . These layered rocks are like a stack of saucers that overlie and are younger than the ancient cratered terrain that surrounds the polar region. The secret of possible water on the surface of Mars may be in this region. This photograph was taken by the Mariner 9 spacecraft in the 417th orbit of Mars.

EEO DIRECTOR VISITS AMES . . . Ruth Bates Harris (second from left), Director of the NASA Equal Employment Opportunity Program and Stephanie Chaconas (third from left) Assistant Director for the NASA Human Rights Program, met with Ames' Equal Employment Opportunity Committee July 27 to discuss the Center's program. Ames committee members are; (l to r) Willie L. White, Jr., APT: Jessie C. Gaspar, RKS: Ava N. Johnson, ASR; Reginald F. King, RFS; and (foreground) Michio Aoyagi, RKST.

Ten Years of TV

Millions of television viewers in the United States, and a few in France and England, watched a taped black-and-white picture of an American flag flapping in the Maine breeze to the recorded accompaniment of the Star Spangled Banner.

The time was 7:33 p.m. EDT, July 10, 1962. Picture and sound, transmitted skyward over the Atlantic from a huge horn-shaped antenna near Andover, Me., were being retransmitted back to Andover and to Holmdel, N.J., from a glistening new Earth satellite, Telstar 1, built by the American Telephone and Telegraph Company and launched by NASA 15 hours earlier aboard a Thor-Delta rocket from Cape Canaveral, Fla.

Though not intended, the signals were picked up also by stations at Pleumeur-Bodou, Brittany, and Goonhilly Downs, Cornwall.

And so, 10 years ago begun the age of trans-ocean television.

Next day the 170-pound Telstar 1, speeding around the globe every 158 minutes in an orbit of 580 by 3500 miles, relayed the first TV pictures westward from Europe, black-and-whites from both France and England, and within a week the first in color.

On July 23 mass audiences on

(Continued on Page 3)

Velikovsky to Speak at Ames Aug. 14

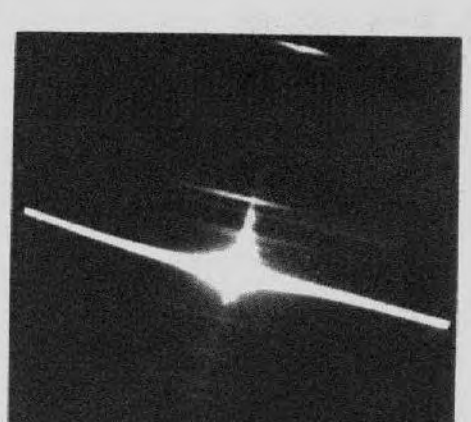
Immanuel Velikovsky, internationally-known author and controversial figure in the field of cosmology, will speak in the Ames auditorium, building 201, August 14 at 3 p.m. The public is welcome to attend the lecture, sponsored by Ames' Biotechnology and Planetary Biology Divisions.

Author of such works as "Worlds in Collision" and "Ages in Chaos," he will speak on "Man and the Universe in the Light of the Space Age."

Speaking of Velikovsky, Dr. Richard Haines, Neurosciences Branch, said; "He is considered by many to be a scientific genius of this century."

Velikovsky is credited with predicting the existence of the Van Allen belts, the high surface temperatures on Venus, and the Moon's magnetic fields prior to scientific verification of the phenomenon.

His works have been reviewed recently in an entire issue of Pensee magazine (May, 1972), published by Student Academic Freedom Forum, Portland, Oregon. A study of the man and his thinking, it is entitled "Immanuel Velikovsky Reconsidered." Copies of this issue are available in Ames' Main Library, building 202 and Life Sciences Library, building 239.



A LUNAR VIEW OF EARTH . . . Photograph taken by Apollo 16 camera shows the spectrum of the upper atmosphere of the Earth and geocorona. The bright horizontal line is far-ultraviolet emission of hydrogen extending 40,000 miles either side of the Earth. The knobby vertical line shows several ultraviolet emissions from the Earth's sunlit atmosphere, each lump produced by one type of gas (oxygen, nitrogen, helium, etc.). The UV camera/spectrograph was designed by Dr. George R. Carruthers, an astrophysicist at the Naval Research Laboratory, Washington, D.C., where it was built. Scientists have acquired their first clear photographic and spectrographic views of the Earth's atmosphere with this lunar experiment.

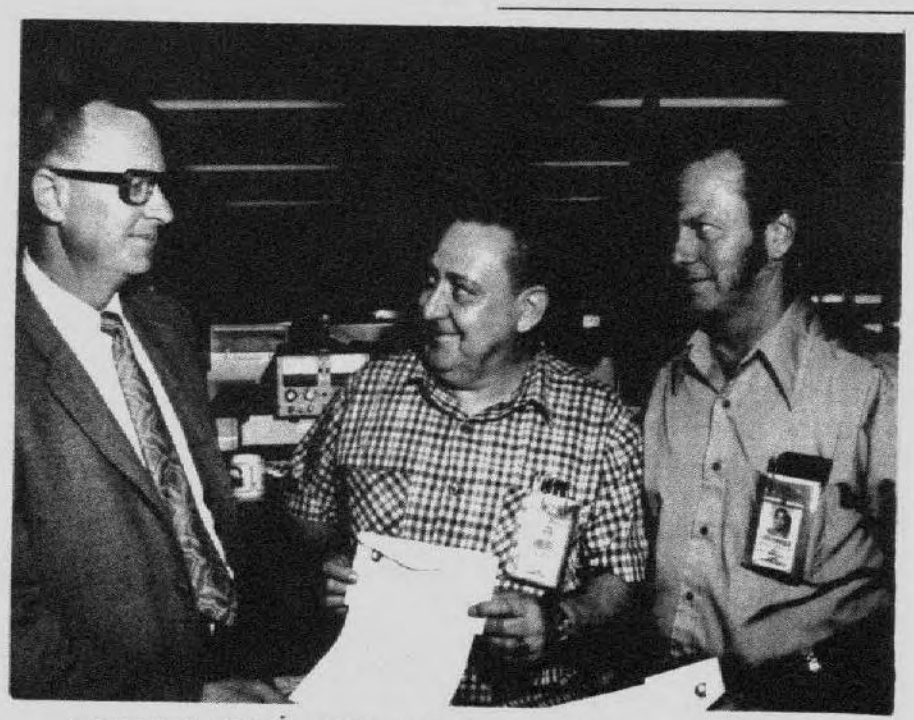
Former Director H.J. Allen Honored

H. Julian Allen, Director of Ames from 1965 to 1969 was initiated into the Stanford chapter of Tau Beta Pi, the national engineering honor society this year.

The Stanford Engineering News, published by Stanford's School of Engineering, recently carried this announcement of Allen's initiation;

"Also initiated was H. Julian Allen, A.B. '37, M.E. '35. Mr. Allen attended Stanford prior to the establishment of a Tau Beta Pi chapter at the University. A local chapter has a prerogative to initiate engineers whose engineering was taken at an insitution that did not have a chapter and/or whose accomplishments in his professional life merit membership. Mr. Allen qualifies on both accounts, graduating with distinction and working many years with NASA and its predecessor, NACA. Mr. Allen invented the asymmetric adjustable nozzle for wind tunnels and is credited with developing the "blunt nose" concept for space vehicle reentry into the atmosphere and for developing the NASA/Ames Laboratory to today's eminent position in the engineering and scientific world."

"A JOB WELL DONE" . . . NASA's Special Achievement Award was presented to the Ames staffing specialists team recently for its " . . . diligent efforts and close cooperation with all levels of management (which) not only helped to achieve the overall hiring goals of the Center, but were instrumental in furthering the aims of the affirmative action plan with respect to the Equal Employment Opportunity Program. Presenting the award is Personnel Division Chief, Robert L. Pike (left) and Assistant Chief, Lester B. Briggs (fifth from left). The team is; (l to r) Harold W. (Tut) Gerdes, Jeanette D. Remington, Nadine H. Kuhlmann, and John J. McLaughlin. Not pictured is Donald E. Schilling.



LETTERS FROM "THE BOSS" . . . with accompanying checks for $250 were highlights of an awards ceremony honoring Ames craftsmen Robert J. Hudock (center) and Robert A. Steinhauer (right) of the Electronic Instrument Services Branch. Presentation of the two NASA Special Achievement Awards and congratulatory letters from Dr. Hans Mark, Ames Director, was made by Leonel S. Stollar, Chief of the Technical Services Division. Mr. Hudock received the award for his excellent craftsmanship in the fabrication of an Ultrasonoscope, an electronic instrument used to determine, display and record an astronaut's cardiac condition and EKG without disturbing the natural functions of the heart. Mr. Steinhauer was recognized for the "extremely high quality" of his work in the fabrication and assembly of the hand held Lunar Portable Magnetometer (LPM) used by the astronauts on the Apollo 14 and 16 flights.

Procedures for Retiree Claims (Continued from Page 1)

to the Commission, with his retirement application, after the agency pays his final salary - usually 20 to 30 days after the date of retirement.

The first thing the Commission does when it receives a retirement claim is to notify the applicant of its receipt and of the claim number assigned to him. At the same time, the Commission notifies the health insurance carrier that the employee has shifted to the retirement rolls and coverage is maintained.

Next, the Commission obtains all records of prior Federal employment from its records center. The claim is then ready for special payment, which consists of issuing a check based on a conservative estimate of the annuity due. The first special payment is made in the vast majority of cases within 10 days after receipt of the application. Additional special payments are made monthly until the exact amount of annuity has been computed. Any differences between special payments and the exact amount due are then adjusted.

Despite the unusually high workloads created by June retirements, the Commission expects to complete final adjudication of most of the 40,000-plus claims within a few months, and to be operating on a current basis by late fall.

Mr. Ruddock advises the newly retired to do the following in the event something goes wrong: If not informed by the Commission within 30 days after the last paycheck was received that the record has been obtained and a claim number assigned, the retiree should ask the personnel office of the agency in which he worked to check the agency payroll center to see if the claim has been forwarded to the Commission. If it has, he should request that the agency furnish him the number and date of the Register of Separations and Transfers used to transmit the claim to the Commission. This information will enable the Commission to locate the claim quickly.

Retirement queries can be made by writing the Commission at 1900 E Street, N.W., Washington, D.C. 20415, or by calling (AC 202) 632-5550. Help can also be obtained by contacting Commission regional and area offices around the country.

The Astrogram
Admin. Mgt. Building
Phone 965-5422

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Editor . . . . . Jeanne Richardson
Reporters . . . . . NASA Employees

Deadline for contributions:
Thursday between publication dates

ASEE Workshops Offered In August

A series of workshops programmed for the Ames-Stanford ASEE Summer Faculty Fellows are being made available to interested Ames employees. The schedule is as follows:

"Laboratory Optics" Tues., Aug 8, 1:15 - 4:15, Ames, Bldg. 213, Rm. 261, Chairman, Prof. Bershader of Stanford.

Thurs., Aug. 10, 1 - 4, Stanford, Rm. 450, Durand Bldg.

"New Development in Aircraft Structures," Chairman, Prof. Mayers (Stanford), Aug. 15, 8:30-11:30, Ames, Bldg. 213, Rm. 261, 1 - 4.

"Space Biology" Thurs., Aug. 17, 8:30 - 11:30, Ames, Bldg. 213, Rm. 261, Chairman, Dr. Klein, of Ames. Also at 1 - 4.

Those interested in participating in the workships are asked to call Mrs. Evans, ext. 5624, Ames Training Office.

Ten Years of TV

(Continued from Page 1)

both sides of the Atlantic watched the first international exchange of live TV.

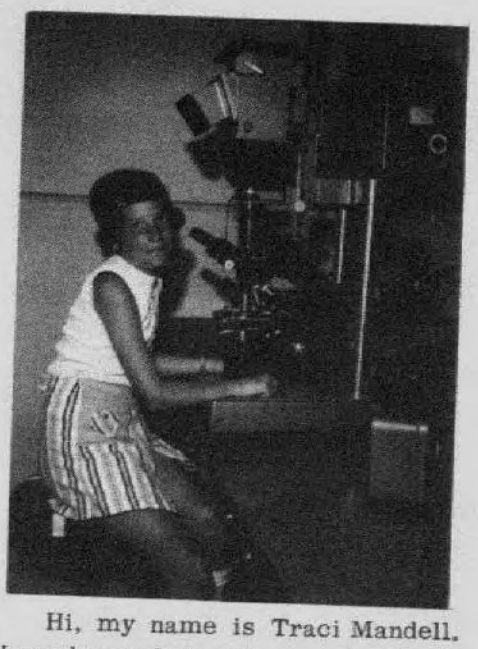
Viewers in Europe saw the Statue of Liberty, a baseball game between the Phillies and the Cubs in Chicago, a Presidential press conference, buffalo roaming the South Dakota plains, the Mormon Tabernacle choir singing at Mount Rushmore.

Americans, in turn, got real-time glimpses of Big Ben from London's Tower Bridge, the Coliseum in Rome, the Louvre in Paris, the Sistine Chapel in Vatican City, Sicilian fishermen reefing their nets, reindeer near the Arctic Circle in Norway.

The latest high-capacity Intelsat IV (F-5), launched June 13, can carry 5,000 to 6,000 two-way telephone conversations and will add 12 TV channels to the 48 now available between the U.S. and other nations when it goes into service over the Indian Ocean late this month. That's 12 to 20 times the capacity of Telstar 1.

MIT BOUND AT 17 . . . Linda Young (right), plans to major in biophysics this fall at the Massachusetts Institute of Technology. Offering encouragement is her mother, Dr. Ho Lee Young (center), Human Studies Branch, and Dr. Leonard P. Zill, Chief of the Planetary Biology Division (left), who presented her with a $350 scholarship from the Federal Personnel Council (FPC). The FPC, provides scholarships for outstanding high school graduates who are children of Federal civilian employees.

Miss Young, who graduated from Castro Valley's Canyon High School in June, received an impressive list of other honors. These include; an MIT scholarship, two Bank of America Achievement Awards, California Scholarship Federation Life Membership, California State Scholarship, Bausch and Lomb Science Award, Governor's Scholarship's Award, U.C. Berkeley Scholarship, South Bay Chinese Club Scholarship and recognition from the National Merit Scholarship Corporation. She was also chosen Valedictorian for her class, was first on the Principal's Honor Roll, and won the Invest in America essay contest. She participated in the High School Space Biology Program at Ames last year.



Hi, my name is Traci Mandell. I need your help. I'm an exceptional student whose curiosity is only piqued at school. So, my mother Sandy and my father Art, who works in the Cost Analysis and Special Projects Office, and other people in the community organized a group called Lyceum. Through Lyceum I learn about all kinds of things from people who volunteer to spend an evening, afternoon or Saturday, talking with a small group of us about their work or hobby. Lots of people from Ames have already talked to us about things like; lasers, aviation, holography, manned space flights, oceanography, microscopy, ecology, and solar power. They were great, and we'd like to hear more. Would you talk to us?

Lyceum-Help for the Egghead

Lyceum is a place near Athens where Aristotle taught. It is also a non-profit group of laymen in Santa Clara Valley who offer gifted children a chance to explore the world.

The group offers seminars, conferences, workshops, and tutorials for second through eighth grade students who have been identified as mentally gifted minors by elementary and intermediate schools. With the help of volunteer specialists Lyceum presents a broad spectrum of subjects in the arts, sciences and humanities.

"What makes the program so worthwhile is that the lecturers can tell the children what they want to know; information they can't get elsewhere," said Mrs. Mandell, one of the group's originators.

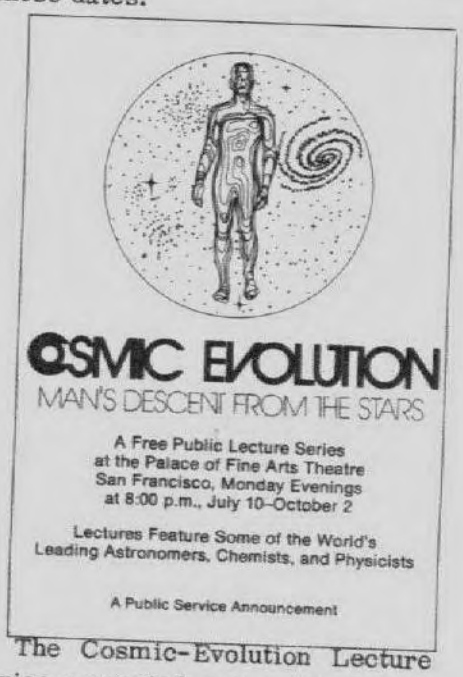
The students choose from a schedule the sessions they most want to attend and apply for them. They are selected by a committee on the basis of their reasons for attending and space available. Sessions are usually limited to 15 students.

Student and teacher critiques of seminars provide program evaluation and permit expression of continued interest or requests for new subjects and methods.

Over 900 students participated last year from the Union, Los Gatos and Oak Grove School Districts. San Jose Unified will be added this fall, increasing the students to 2000.

Speakers range from artists, craftsmen, doctors, and engineers to mathematicians, scientists, and linguists. Lyceum's Science Program Committee would like to include a number of science and math seminars in this year's Fall and Winter programs. They are now soliciting volunteers to conduct these and other programs.

Interested employees should contact Mrs. Arthur Mandell at 226-3315. (The Mandells will be on vacation from August 5 to August 12, so contact her before or after these dates.



The Cosmic-Evolution Lecture series prompted such public interest that the schedule has been modified to provide two lectures instead of one each Monday night. Times are 7:30 p.m. and 9 p.m.

A charter bus for Ames employees will leave from the front of the Administration building at 6 p.m. to arrive for the 7:30 p.m. lecture. Admission is free and seating is reserved for those riding the bus.

Ames employees who wish to provide their own transportation may obtain reserved tickets at the Public Affairs office in building 204, extension 5091.

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August 7-Genesis of Planetary Systems, Dr. Ichtiaque Rasool, Deputy Director for Planetary Programs, NASA.

August 14-The Origin of Life, Dr. Melvin Calvin, Professor of Chemistry, U.C. Berkeley.

GAY RETIREES . . . Ed Courtney, formerly of the Materials Research Branch, and his wife, Thelma, formerly of the Health and Safety Office, happily display proof of their newly acquired status; license plates which read ARC RET, golf clubs, and smiles.

Thank You

"My sincere thanks and appreciation to all who made my retirement luncheon such a memorable occassion. Thank you so much for the nice gift and the coffee and cake hour you also gave me.

Jo and Dick Oliva"

"To my friends at Ames,

Thank you for the wonderful retirement party. The gifts were most thoughtful and will serve to remind Jane and me of our many friends at Ames.

Best Regards, Charles Shepard"

"Dear Colleagues:

I wish to thank you for contributing to the Heart Fund in the memory of my mother, Mrs. Ping Wun Lee. I regard this expression of sympathy as appropriate and compassionate.

In accordance with an old Chinese custom, I should now return to each of you a "lishr" (a coin enclosed in a small red envelope) as a symbol of good fortune. I recall, however, a Chinese philosopher saying that a person attains happiness only when he has concern for his fellowmen. Consequently, I gave those lishrs to the same Heart Fund to which you graciously contributed. I hope that my so doing will bring you the same good fortune that the lishr symbolizes.

Sincerely yours, Kin L. Lee"

SOFTBALL

Bob Corbett pitched his best game of the season with shut out ball for NASA-Ames resulting in a 6-0 victory over the Father's Club on July 21.

NASA-Ames currently has a 3 win, 0 loss record for the second half of the season in the San Jose Fast Pitch League.

Ames played flawless ball allowing no Father's Club runners to reach second base.

For the first time this year the players heard a lot of cheering for NASA from the stands. Apparently a fan club for Ames is developing. Come to Solari Park Thursday, Aug. 3 to watch us take on Almaden A.F.S. at 9:15 p.m.

No Card-No Car

The U.S. Motor Vehicle Operator's Identification Card (SF 46) is just that, a card, not a driver's license. Any driver of a Government vehicle must have a permit or license issued to him by the State or other licensing jurisdiction as well as an SF 46.

Due to a recent Federal Personnel Manual amendment the SF 46 will include an entry which will read; "Void unless accompanied by a valid State driver's license."

The SF 46 card must be shown when checking out a Government owned vehicle. Steps have been taken to assure that this regulation is being followed for both on and off Center use.

WANT ADS

AUTOMOBILES

For Sale-Aztec GT-12X Sportscar. Fbrglss body by Fiberfab. Mag whls. Gdyr Polyglas wide ovals. Many extras. Best offer, 298-1797.

For Sale-'68 Dodge fmly wgn, 318-V8, AT, slps 4 1/2, dome top, inside loft for strge. Top cond., $3500, or best offer, 243-2266.

For Sale-'70 Chevelle SS hdtp, 396, 4-spd, tinted glss, AMFM stereo, ex cond, lo mile. Son leaving for Viet Nam, must sell. $2500 or best offer. Ed Kelley, 294-9289.

For Sale-'70 4-dr. Ply. Val., 225 eng., P/S, R & H, new tires, HD shock & brakes, immac. cond. $1900 or offer, must sell, 286-8406.

For Sale-'68 Ply.-8-Satellite. Auto. trans., air cond, vinyl roof, new bat. & radial tires, 31000 miles, ex. cond. $1450, 941-5039.

For Sale-'70 VW Westfalia cmpr. sacrifice, must sell, immac. cond. see to appr., refrg sink, table, $2450, 736-1710.

For Sale'61 TR3, gd cond, gd tires, recent engine & trans. rebuild, lug. rack. $600, call 241-5019.

For Sale-'63 Valiant stn.wgn., in gd oper. cond. 1st owner, new brakes recent paint job, $250, 941-3589.

HOUSING

For Sale-40 acre parcels of recr. & invest. land near Portola St. Park, some improve. $36,000 to $40,000. Call 948-2987, evenings.

For Rent-Vac. cottage, Sunnyside N. Tahoe, 2-bdrm, wlk to beach or marina, $90 per wk, $40 per wknd. 964-9848 or 967-3845.

MISCELLANEOUS

For Sale-Baldwin Orgasonic organ (Spinet) $495, call 246-9268.

For Sale-Ladies Raleigh Sprite, 10-sp , gen., light, rack, chain & lock, like new, $90, cash, 923-7499.

For Sale-Grdn shed, 8x10', metal, sldng drs, new Nov. 71, $70; 30" Kenmore elec. stove, glss dr, gd. cond., rotisserie in oven. Make offer. Accordian 120 Bass, $100. 736-1573.

Free-Kittens w/ tiger markings, 1 black, call 255-9411.

For Sale-Genuine mahogany leather top, 30" rnd table, $30. Lazy-Boy tall man's recliner, dk grn, naugh. $125. Both in ex. cond., call after 6 p.m., 252-1229.

Wanted-2 matching capiz shell hanging lamps, 252-8316.

Will person or persons who borrowed the "Nude Duck" from Bldg 204 Lab 107 please return same, no questions asked.

Lost, Strayed or stolen -1 new IBM Selectric II typewriter. 1/2 bottle of Vaseline Intensive Care Handlotion. 1 rubber stamp with pungent motto. 1 hot pink Flair pen, 1 blue bud vase. Please return to Illiac Project, Bldg. 233, Room 245.

For Sale-Yamaha 150 guitar plus case $80. Ex. cond. (cost $115 new) Call Joan Clark at 369-3540.

For Sale-'69 Volvo stn. wgn., R& H, radial tires, very cln. Leaving country, $2150. 252-5259.

For Rent-4-bdrm, near De Anza Col., AEK, avail. Aug. 15, 197[illegible] Aug. 1973. $350/mo., 252-525[illegible]

For Sale-Television, Zenith, B&W remote cntrl, 21" diag., ex. cond. 738-1167.

For Sale-Saratoga Country Club membership, 736-7358.

Chinese Banquet

A gourmet Chinese banquet will be served at the Golden Pavilion in Los Altos on Friday, Aug. 18. No-host cocktails will begin at 6:45 p.m. with dinner at 7:45 p.m. The dinner will be $5.50 per person including tax and tip. For reservations call Guy Wong at ext. 6022 before Aug 3[illegible]

Credit Union

Numerous records were broken during June as the Moffett Field Employees Credit Union continued a steep growth curve. The 4.4 million dollar mark in assets was passed according to Fred G. Mayer Manager.

Nearly 1/2 million dollars in loan activity took place with assets growing to nearly $200,000 over the previous month.

The credit union's new loan policy has resulted in a very marked increase in loan activity, according to N.J. Gambrill, Captian, U.S.N. who recently joined the Board of Directors of the Credit Union.

At a recent meeting of the Board Captain Gambrill was elected Vice-President, filling out the unexpired term of Captain F.T. Stephens, former Commanding Officer of Moffett Field. The credit union feels fortunate in having the services of men of this calibre.

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FIRST CAPABILITY TO RESCUE MEN IN SPACE . . . A model of the USSR's Soyuz and the U.S. Apollo spacecrafts are shown in simulated rendezvous and docking in Earth orbit. The docking and crew transfer module is shown attached to the Apollo command module. The international rendezvous and docking mission planned for 1975 will be a joint flight by three American astronauts and three Soviet cosmonauts. The mission will provide the first capability to rescue men in space.

"Galileo" Explores Ocean Life

Vital ocean resources may soon be preserved and developed, and pollution of the seas prevented through research conducted aboard Ames' Convair 990 "Galileo" jet transport.

Color contrasts at the sea surface are caused by changes in chlorophyll concentrations, sedimentation and other physical or biological factors. Subtle changes in these may be detected by sensitive instruments in aircraft and perhaps spacecraft.

The feasibility of gathering the data from high altitudes was tested in a series of research flights using Ames' Galileo jet transport recently. Calibration flights were run over areas of strong ocean upwelling off the coasts of California, Massachusetts, North Carolina, Florida, and Africa.

At each site arrangements for ships were made to take compar-

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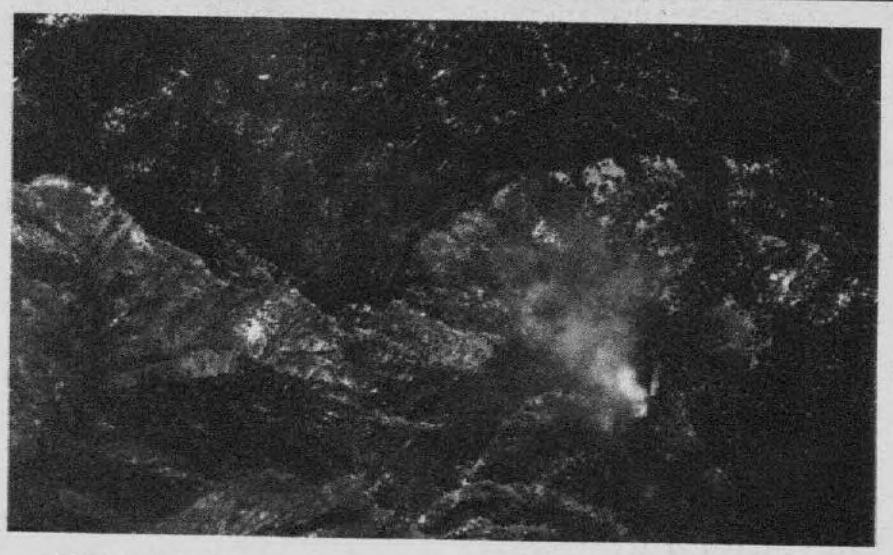
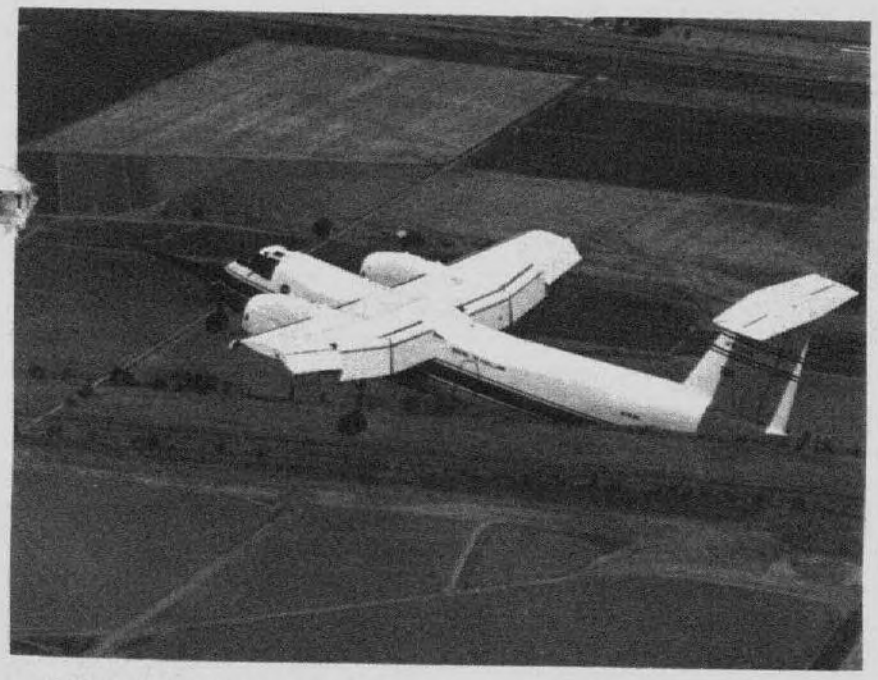


AMES AIRCRAFT AIDS BIG SUR FIRE EFFORTS . . . High altitude photographs, like the one above, were taken of the Molera fire in the Big Sur area from Ames' Earth Resources Survey Aircraft. At the request of the State of California fire officials the aircraft were used to plan strategy for fighting the disastrous fire.



THE FLIGHT OF THE "BUFFALO" . . . Ames' Augmentor Wing Jet STOL Research Aircraft, called the "Buffalo", is pictured above during its first research flight on Aug. 9. The aircraft will be used for a year or more of exploratory flight research to test the handling qualities and operational characteristics of the Augmentor Wing concept.

The Augmentor Wing is one of several powered lift concepts being investigated by NASA for potential use in future STOL jet transports which may be operated from runways as short as 1,500 feet. It uses by-pass air from the engines which is ducted through the wings to a slot along the rear of the wing and is ejected through hollow wing flaps.

The research program is sponsored jointly by NASA and the Canadian Department of Industry, Trade and Commerce.

Pioneer Measures Solar Storm

Ames' Pioneer 10 spacecraft, on its way to a rendezvous with Jupiter, traveled through the recent solar storm, the largest in 18 years, with no damage. Pioneer is now 200 million miles from Earth.

Solar plasma from the storm reached the 570-pound spacecraft at a speed of 300 to 1000 miles per hour according to Pioneer's Plasma Analyzer experiment. The analyzer is mapping the density and mechanisms of solar wind (ions and electrons flowing out from the sun). Ames' Dr. John H. Wolfe is Principal Investigator for the experiment.

According to Richard O. Fimmel, Spacecraft Science Chief; "Several of the spacecraft's experiments measured the exceptional intensity of the solar activity."

The University of Chicago's Charged Particle Instrument and Goddard's Cosmic Ray Telescope which measure the density, speed direction and mechanisms of cosmic rays (atomic nuclei) coming from the Sun and Galaxy, and the interaction of charged particles, measured activity up to 500 times normal.

The Geiger-Tube Telescope, for which Dr. James A. Van Allen, University of Iowa, is the Principal Investigator, indicated activity increased from 10 to 300 times normal. The Van Allen experiment is

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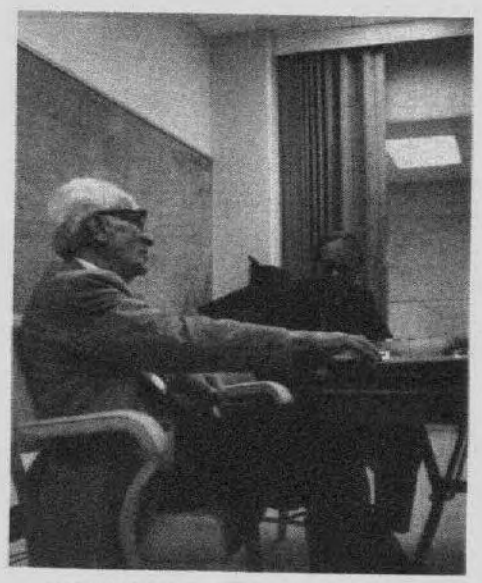


IMMANUEL VELIKOVSKY . . . (foreground) discussed his controversial cosmic theories with members of the Ames staff and several visitors at an informal talk in Ames' Lifes Sciences Building Aug. 14. Seated with Dr. Velikovsky is Dr. Richard Haines, Neurosciences.

Later Dr. Velikovsky spoke to a capacity crowd in the Main Auditorium. Over 200 were turned away.

Author of 'Worlds in Collision', he challenged scientific beliefs in 1950 with his theory of a violent reordering of planets within our solar system in historic times.

Discussing his concepts he said; "A few items have not yet been confirmed, but none have yet been disproved."

He warned scientists that Mars is; "rich in microbic and pathogenic life that may be harmful to visitors from Earth." He also warned of possible harm to astronauts from Martian radiation.

Army Lab Gets New Deputy Director

Colonel Norman L. Robinson joined the U.S. Army Air Mobility Research and Development Laboratory at Ames August 1 as Deputy to the Director, Paul F. Yaggy. Colonel Robinson will be the Director's advisor, and he will exercise military command responsibilities for the Director as senior military officer.

NORMAN L. ROBINSON

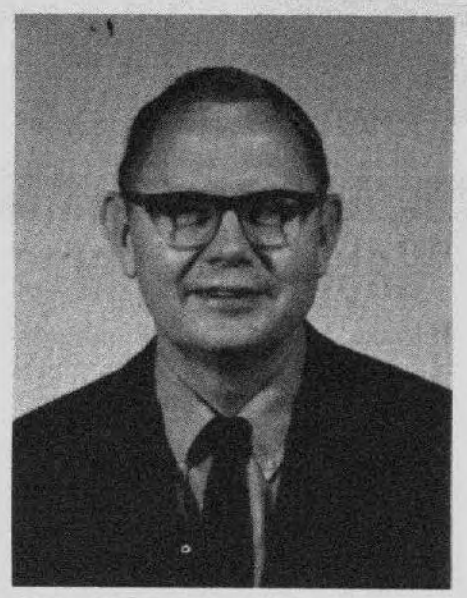
Colonel Robinson comes to the AMRDL from Arizona, where he served as the Commanding Officer of the Yuma Proving Ground. In this previous assignment, he has been active in the testing and proving of products and concepts developed by all phases of the Army Research and Development Programs. As a career officer, Colonel Robinson has had a variety of assignments worldwide, including Europe and Asia. He also has served on the staff of the Chief of Research and Development, Department of the Army, where he was involved in policy and review and analysis.

Colonel Robinson, a native of Oregon, received his Bachelor of Science Degree from the United States Military Academy and his Master of Science Degree in Aerospace Engineering from the University of Arizona. He, his wife Carol and their four children (Kent Richard, Ann and Philip, will reside in Cupertino.

Kvenvolden Is Associate Editor

Dr. Keith A. Kvenvolden recently accepted the responsibilities of Associate Editor for Organic Geochemistry for Geochimica et Cosmochimica Acta. The official journal of the Geochemical Society and the Meteoritical Society, it is the most prestigious journal among geochemists.

As Associate Editor, Dr. Kvenvolden will work with papers dealing with organic geochemistry and cosmochemistry. The editorship involves no remuneration or support from the journal and will be considered part of his official duties with NASA.



DR. KEITH A. KVENVOLDEN

Dr. J.M. Hayes of Indiana University was also asked to serve as Associate Editor for Organic Geochemistry for the journal.

THOSE DARING YOUNG WOMEN IN THEIR FLYING MACHINES . . . Ms. Betty K. Berkstresser, MA, (left) and Ms. Susan M. Norman, MA, (right) are pictured above as they made a pre-takeoff check of the Cherokee 140 they flew in the 26th Annual All-Woman Transcontinental Air Race or 'Powder Puff Derby.' After months of preparation and 318 combined flight hours they took off as number 75 from the San Carlos Airport July 7. Four days and 2,600 miles later they landed in Tom's River, New Jersey as the 86th team of 105.

"We felt it was quite an accomplishment just to finish the race considering the competition," said Ms. Norman. Because many of the pilots were professionals and most of the planes faster than theirs, the girls had to fly almost continuously to stay in the race.

The race is held each year to encourage women in aviation and to promote general aviation safety. There has never been a serious accident during a Powder Puff Derby.

"We really enjoyed it," Ms. Norman said. "It was one of the most interesting things I've ever done. We certainly learned a lot."

They were greeted in Tom's River by Governor Cahill of New Jersey, F.A.A. Administrator, Jack Shafer and other dignitaries, then feted at a banquet in their honor.

The girls wore Pioneer and NASA orbital flight patches on their jackets and carried the motto reminder "Pioneer Goes Fastest" throughout the race.

'Galileo'

(Continued from Page 1)

ative data from the sea surface at the same time airborne measurements are made. Along the African coastline, southwest of Dakar, five Russian ships provided the "surface truth" measurements for the NASA expedition.

The ships were part of the Institute of Oceanology, USSR, which is conducting oceanographic research between the African Coast and South America. When the information gathered by each group is analyzed they will exchange their findings at a conference to be arranged by Dr. W. Nordberg, Expedition Scientist, of Goddard.

The data obtained from this series of flights will be used to determine design and definition specifications for an Ocean Color Imaging Spectroradiometer Experiment for a proposed Earth Observations Satellite (EOS).

Most of the data gathered during the expedition has not yet been analyzed. However, a correlation between the temperature of the water and biological productivity was indicated from "real-time data readout." The airborne scientists were also able to identify the boundaries of the Gulf Stream through temperature and chlorophyll content measurements.

The availability of repetitive data over a given area of ocean would make it possible for oceanographers to chart trends in pollution and marine life, and to manage an ocean resources program. Such a program would not be feasible [illegible] surface craft.

A team of scientists from NASA, TRW Systems, and the National Oceanic and Atmospheric Administration-Applied Physics and Chemistry Laboratory (NOAA-APCL), headed by Dr. Warren Hovis of Goddard installed pectrometers, photometers, radiometers, cameras and other scientific equipment aboard the aircraft for the expedition.

The flight crew and expedition personnel total about 37 persons.

FLASH

A biochemical machine process developed for NASA to detect extraterrestrial life has been adapted to analyze bacteria in urine samples.

Called FLASH, the device achieves simple, fast, accurate bacteriological assays. FLASH stands for fast luciferase automated assay of specimens for hospitals.

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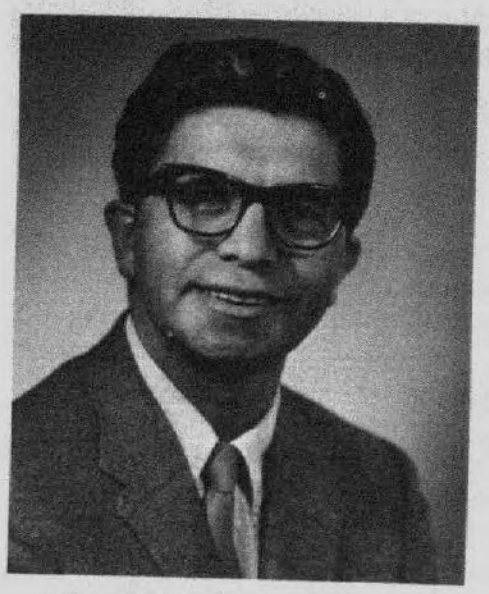
Orozco Appointed Program Head



Manuel M. (Mike) Orozco, FSV, was recently appointed Coordinator for the President's Sixteen-Point Program to Assist Spanish-Surnamed, by Dr. Hans Mark, Ames Director. He has been an Equal Employment Opportunity Counselor since 1969.

The Sixteen-Point program was initiated by President Nixon in 1970 to assist Spanish-speaking American citizens who are interested in joining Federal civilian service. Mr. Orozco is the first Coordinator for the Ames program.

The intent is to begin an intensified drive to recruit Spanish-surnamed persons into Federal civilian service. Through the program colleges, public agencies and other Federal agencies will be contacted in efforts to enhance opportunities for Spanish-speaking persons.

During a recent interview Mr. Orozco said of the appointment; "I'm really looking forward to this. I think my contacts with community groups will help initially in recruiting."

Mr. Orozco received a Bachelor of Arts degree from the California State University at San Jose in 1953. He joined the Ames staff in 1955.

Pioneer

(Continued from Page 1)

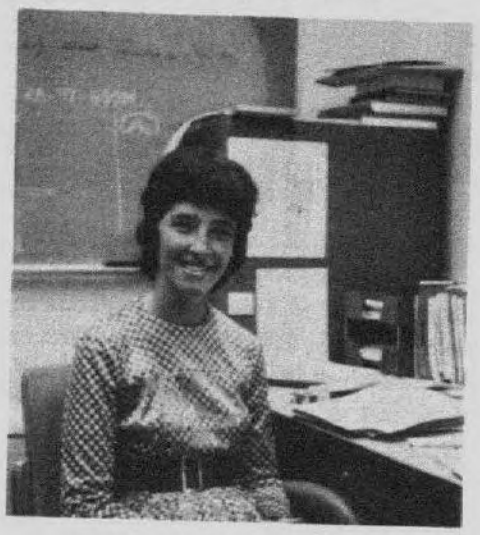
measuring the intensities, energies and distribution of energetic electrons and protons in interplanetary space. It is one of the instruments designed to measure Jupiter's trapped radiation when Pioneer encounters this giant of our solar system.

The Jet Propulsion Laboratory's Helium Vector Magnetometer indicated that the storm had also caused an increase in the intensity of interplanetary magnetic fields.

Three New EEO Counselors Appointed

Dr. Hans Mark, Director, recently appointed three new Equal Employment Opportunity Counselors. Nancie L. Bell, LXB, Hermilo R. Gloria, SSE; and Lewis A. Turner, RSM, will fill the expired terms of Toribo G. Gonzales, RKO; Reginald F. King, RFS; and Joseph P. Licursi, RSE.

It is the responsibility of the EEO Counselor to handle any complaints of discrimination. He acts as a liason between employee and management, maintaining an open and sympathetic channel through which all personnel may raise questions or discuss grievances.



DR. NANCIE L. BELL

Dr. Nancie L. Bell during a recent interview said of her appointment; "I think it will be a good experience for a lot of reasons. I feel particularly qualified to work with women, since I'm familiar with their problems."

When asked how she felt about 'Women's Lib' she said; "Claims of discrimination voiced by the women's movement are truly legitimate and remedial legislation is long overdue.

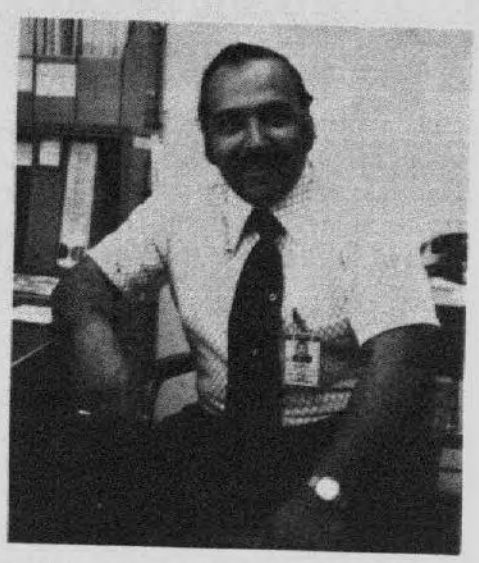
Dr. Bell received a Ph.D. in Microbiology from Ohio State University in 1967 and joined the Ames staff the same year. Since that time she has been Prinicpal Investigator on the Hydrogenomonas food production and waste conversion system experiment, and is presently the Principal Investigator on Ames' aerobiology program under The Earth Science Applications Office.

She was also a member of the Viking Project (Mars Titan '73 Bioexperiments Team.

HERMILO GLORIA

Hermilo Gloria grew up in the ghetto area of Del Rio, Texas. He attended segregated schools and commented during a recent interview; "People will find me hard nosed on these matters. Many young people don't know what deprivation really means."

Mr. Gloria has been active in many community organizations, including the Community Service Organization, Economic Opportunity Commission; and he is on the Board of Directors for the Mexican-American Citizen's League of Santa Clara County.



Through these organizations he has done a good deal of tutoring and counseling. He said of his Ames appointment; "It will be interesting to see what is really going on at the Center in these areas. I am looking forward to the counseling."

Speaking of problems in Santa Clara County he said; "Most people stereotype Mexican-Americans into the migrant worker category. Actually only about 15 percent of the Mexican-Americans in Santa Clara County do this kind of work. Most are middle-income families."

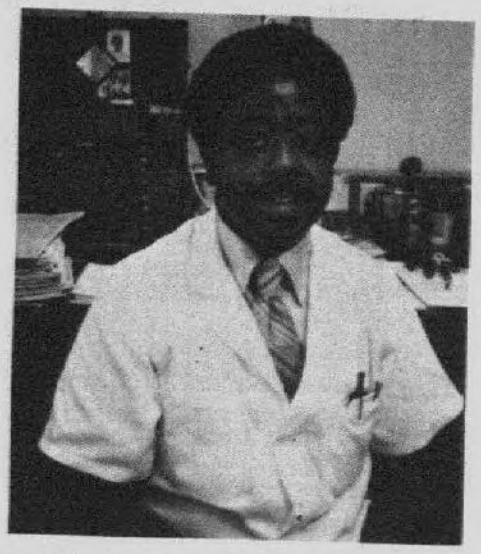
Mr. Gloria received a Bachelor of Science degree in Aeronautical Engineering from the University of Notre Dame in 1949. After graduation he joined the Ames staff as an Aerodynamiscist. He has done graduate work in chemistry and optics at UCLA and UC Berkeley.

Professionally Mr. Gloria has been involved in air pollution research and is the Principal Investigator in Ames' Pollution Flight Program. He was a member of the Ames Earth Resources Project Defining Committee and a Consultant in Air Pollution for Ames' V/STOL Committee. He was a lecturer last year with the University of California's Ecology Studies program.

LEWIS A. TURNER

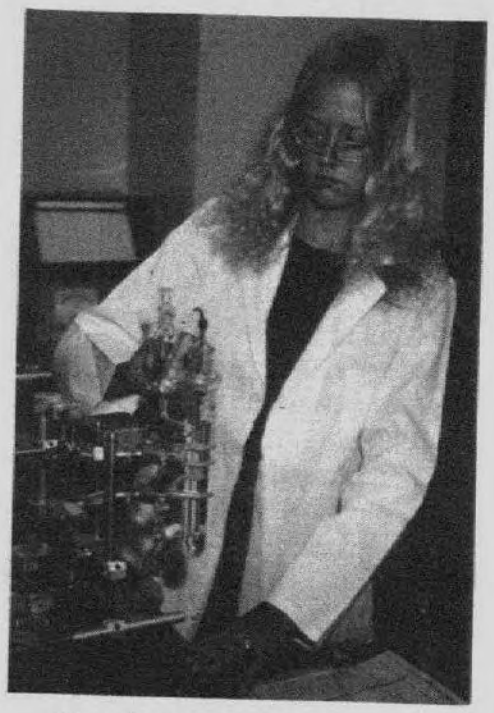
"I would like to be able to help solve the complaints and problems of any of our employees," said Lewis A. Turner, commenting on his recent appointment as counselor.

Mr. Turner grew up and was educated in Toledo, Ohio. He joined the Ames staff in 1962 and is now a machinist in the Model and Instrument Machining Branch. He has also acted as a job supervisor for the Summer N.Y.C. program. Prior to this he was employed by Rossford Ordnance Depot in Toledo and the Veterans Administration Hospital in Palo Alto.



Mr. Turner has received three Sustained Superior Performance Awards, one from each agency.

NYC Success Story At Ames



Christopher (Chris) Rainey, 18, came to Ames less than a year ago as part of the Neighborhood Youth Corps Out-of-School program. She had dropped out of high school after the tenth grade.

At Ames she began working for Janos K. Lanyi in the Biological Adaptation Branch and attending special high school classes at the Center. After nine months in the laboratory she was extracting proteins from Halobacterium Cuterubrum and she had earned a high school diploma.

She will leave Ames this month to attend San Jose City College. She plans to major in one of the sciences and eventually do research in animal behavior.

RECENT RETIREE ADDRESSES

There have been several requests for the addresses of recent retirees. Below is an incomplete list. More will be printed in the next issue.

Retirees frequently write to complain that they have no notification of friends' impending retirement or retirement luncheons. A simple way to notify them would be announcement in "The Astrogram" since all retirees receive it. To submit an announcement send details to mail stop 241-4, two to three weeks prior to luncheon date.

B. Aikman
2236 Forbes Avenue
Santa Clara, CA. 95050
W.D. Atwill
1242 Forestal Avenue
San Jose, CA. 95110
T. Blood
7481 Old San Jose Road
Santa Cruz, CA. 95010
W. Bliss
20346 Craigen Circle
Saratoga, CA. 95070
H. Blomquist
12430 Ted Avenue
Saratoga, CA. 95070
Roger Convertino
13622 Riverdale Court
Saratoga, CA. 95070
Romeo Cuneo
129 Wilshire Court
San Carlos, CA. 94070
Feo Corsini
346 W. Iowa
Sunnyvale, CA.
E. Courtney
5713 E. 10th Street
Tucson, Arizona 85611
G. Coon
1119 Hopkins Avenue
Palo Alto, CA. 94301
J. Doren
772 San Carrizo Way
Mountain View, CA. 94040
G. Edwards
22525 Rolling Hills Road
Cupertino, CA. 95014

V. Fietzer
3222 Ramona Street
Palo Alto, CA. 94301
R. Gatewood
946 Torero Plaza
Campbell, CA. 95008
J. Gabbard
1386 Flora Avenue
San Jose, CA. 95130
W.P. Kohl
630 Wilson Court
Santa Clara, CA. 95051
N. Jacobson
329 Tetan Street
Twin Falls, Idaho 83301
Iris Lang
472 Fathom Drive
San Mateo, CA. 94404
W. Liewer
571 Cherry Avenue
Los Altos, CA. 94022
G. Lukas
1068 Chico Court
Sunnyvale, CA. 94086
J. Magarian
355 Con Cannon Court
Santa Clara, CA. 95050
J. Mulkern
725 The Dalles
Sunnyvale, CA. 94087
E. Nielsen
724 Carlisle Way
Sunnyvale, CA. 94087
J. Nickerson
859 Lincoln Avenue
Palo Alto, CA. 94301

Thank You

"Friends, Co-Workers,

Ann and I wish to thank all of you for a greatly appreciated retirement luncheon and the many kind thoughts that went with it.

HALFA-PINTA is riding safely at anchor in snug harbor. Your gift of the sabre-saw will see good use in time to come and is greatly appreciated.

Auf Weidersen,
George and Ann Lukas

"Dear Friends,

Yo and I want you all to know how much we appreciated and enjoyed the retirement luncheon on June 14. The presence of so many fellow workers of the Biosattelite days brought back many memories of past years.

The sets of tools are welcome gifts and will get their "guaranteed" lifetime use in the years ahead. The Retirement album will always hold a place of prominence in both our hearts and our home and be a constant reminder of my years at Ames.

Our thanks to those whose efforts put the entire lundheon together. Our appreciation to all those whose attendance made it such a memorable occasion.

Sincerely,
Roger and Yolanda Convertino"

Brochures Available

Copies of a brochure entitled "ERTS" are available, by written request from the Audio-Visual Facility, c/o Public Affairs Office, Mail Stop 201-6. Indicate the number requested and give name and mail stop.

Copies of four other publications, "Space Benefits, Today and Tomorrow"; "Space Shuttle"; "Sky Tomorrow"; "Space Shuttle"; "Skylab"; and "Space Benefits-Safety" are still available and may be obtained upon written request.

SOFTBALL

On July 20 a 6 to 1 win over Indoor Amusements was sparked by a two out, three ball two strike, fourth inning triple by Bruce Ganzler.

The July 27 game resulted in a 6 to 4 win over Almaden Air Force Service (due mostly to Bob Bell's bat). Bob has collected a minimum of two hits in each of four out of the last five games. Keep it up Bob.

NASA-Ames has circled the second half championship with a 5 win, 0 loss record. Ames will meet Stonelight Tile Mets in a three game playoff starting Aug. 17.

A young San Jose boy wanted to know if the NASA ball club came from Cape Kennedy Florida.

BOWLING

Bowling for the Tuesday night All Ames Winter League will begin on September 12 at 6:30 p.m. Shadow ball practice starts at 6:25 p.m.

Bowling this year will be at Futurama Bowl near the intersection of Stevens Creek and Lawrence Expressway. Saratoga Lanes, the league's first choice, could not provide enough lanes. Anyone interested in bowling may contact Judy Long at extension 5926.

WANT ADS

For Sale-'64 CAD, 2-dr. h.t., new tires, clean, $875, 356-9695.

For Sale-1970 Toyota, MKII, 4-dr. air cond., $1650, Vice, 258-1675.

For Sale-68 Camaro Z28. 4-spd. trans. eng. runs well, lo mileage. In gd clean cond., must sell. $1600 or best offer. Call 732-4759.

For Sale-66 VW bus, ex. cond., new tires, 8 seat belts, 6 ft. lug. rack, scoops, 45,000 mi., immac. cond. 961-2804.

For Sale-66 Mustang, 4-spd, 15000 miles on rebuilt perfor. 289, its got all r/e goodies. $800. 265-5678.

For Sale-63 Corvair Monza, 2-dr, gd tires; $200. T. Gossett, 967-8487.

For Sale-63 VW, runs good, new brakes, 3 almost new tires, good trans., good motor. $300, 354-2444.

HOUSING

Roommate Wanted-for U.C. Santa Cruz next year. Would like to share expenses with female roommate in modest apartment or house. Please call and we can arrange to see places in S.C. Linda Parise, 948-0871, p.m.

Wanted-Girl 19-25 to share 2-br. Sunnyvale apt. $70 plus utilities, Julie, 269-7584.

For Rent-Sunnyvale location, 3-[illegible] 1 ba., 2-car gar. $190 mo. 244-7112.

For Rent-Vacation cottage, Sunnyside area of N. Tahoe. 2-br., wlk to beach or marina. $60 week, $30 weekend, Labor Day to winter season. Call 964-9848 or 967-3845.

MISCELLANEOUS

Free-Kittens, 3 blk, 1 tan, part Siamese, all have blue eyes. Please call Terry at 965-6340.

For Sale-King size water bed, w/ htr and frame. 4 mo. old, 5-yr war. $50, 323-7070.

For Sale-50cc Honda, scooter-type. Prft cond., $100. 3rd time in Astr[illegible] if no sale this time, I'll keep it. Do[illegible] miss your chance. Call 969-2795.

For Sale-Craftsman hvy dty wlding outfit w/ tanks. Cost $200. Sell $150 329-0747, after 6.

For Sale-Antique piano, a 1903 Estey from New York. Not an ivory missing. All keys in wrk order. Last tuned in 69. $300, call 734-2784, p.m.

For Sale-69 Yamaha DS6 250 Scrambler, 30 hp, 2,900 miles, $475. 238-1014.

For Sale-Camera, Polaroid 100 w/ flsh & prtrait lens. $30, 739-9228.

For Sale-Mem. in Moffett Aero Club $3 hr flt costs, $10 mo, $240 share. Fly rstrd. 1940 Interstate Cadet S-1A Hangared at Reid Hillview airport. (Not pt of Navy grp.) Call 967-8487.

For Sale-Pentax 1 degree/21 degrees exposure meter, new cond. $125, call 493-1419.

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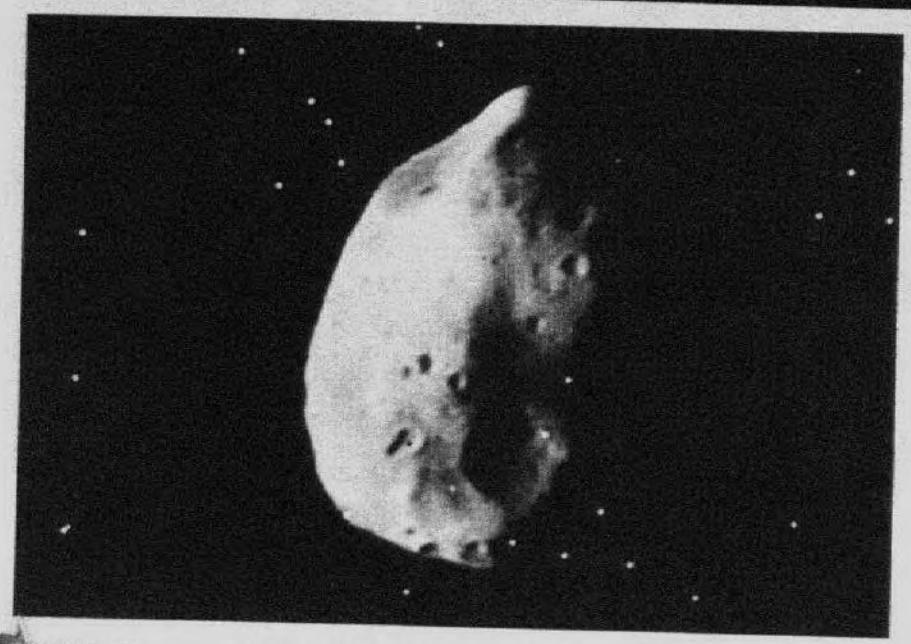

PHOBOS . . . This photograph of Phobos, the larger of Mars' two moons, was returned from Mariner 9. The cratered surface of Phobos has enabled scientists to determine the approximate age of it and its sister moon, Deimos. Note the large indention at the top left edge of the satellite. Scientists believe this may have been knocked off by a passing meteor.

Mariner 9 Studies Mars' Satellites

Man's first opportunity to closely study satellites other than our own moon has been presented by Mariner 9. The spacecraft has been in Martian orbit since Nov. 1971, returning information about Mars and her satellites that has confirmed some theories and shaken others.

Dr. James B. Pollack, SST, a co-investigator for Mariner 9's Television Experiment and head of the experiment's Satellite Group, has developed an interesting picture of the planet's two satellites from Mariner data.

Called Phobos and Deimos, meaning fear and terror, Mars'

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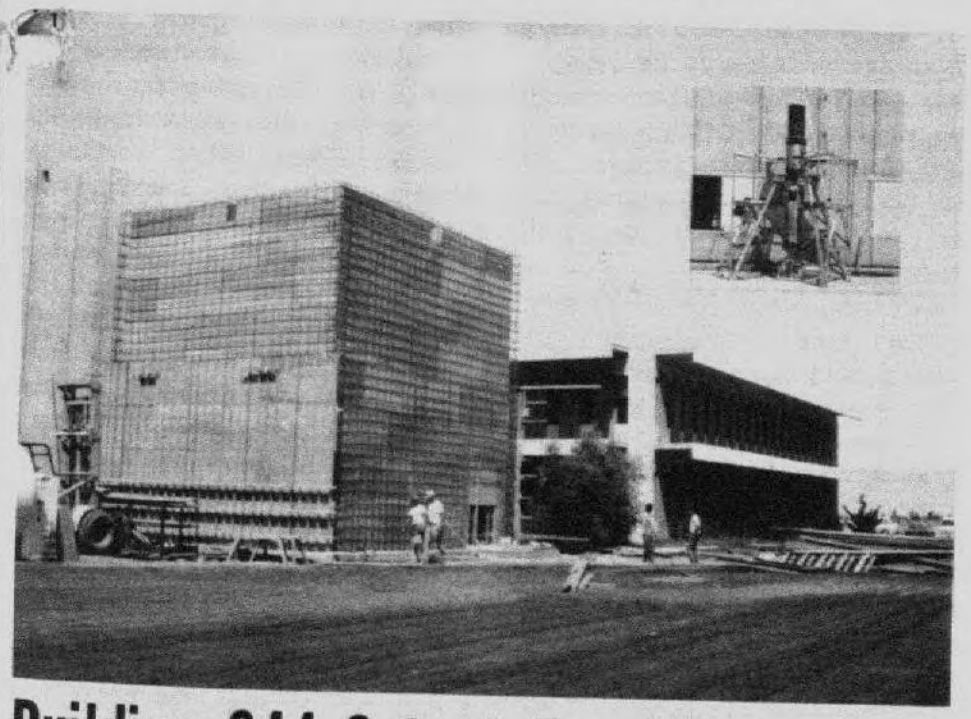

Building 244 Gets A Facelift

The new structure being built onto the front of Building 244 (pictured above) will house the Ames-developed Solar Pointing Aerobee Rocket Control System (SPARCS).

SPARCS is a two-stage rocket which is launched 135 miles above the Earth to collect data about solar phenomena. After launch the rocket sheds its nose cone and fine sun sensors point and lock the rocket

(Continued on Page 2)

CONVAIR MISSION COMMENDED

Dr. Low Tells Cost Problems

Dr. George M. Low, NASA Deputy Administrator, discussed "NASA's Attack On The Cost Problem," before a National Security Industrial Association and Armed Forces Management Association in Washington, D.C., Aug. 16.

In discussing NASA's major cost problems he cited a recent Ames Convair 990 mission as an example in conserving costs while expanding research.

"First," he said, "I'd like to

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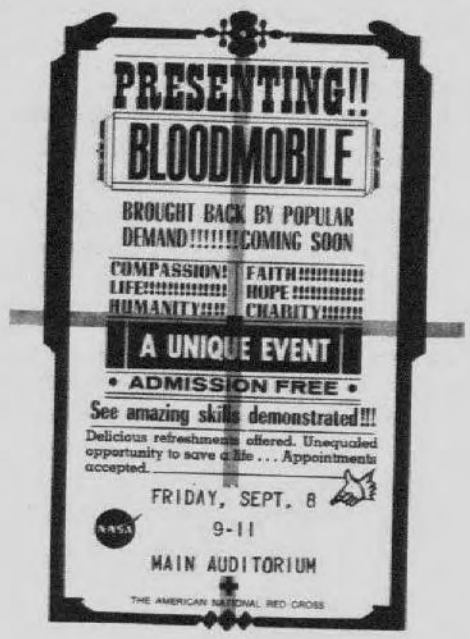

AMES AIRCRAFT HELP FIGHT ANOTHER CALIFORNIA FIRE . . . Photos like the above of the Ventura County brush fire, are being evaluated as a tool for planning fire fighting strategy by U.S. Forest Service officials. This view was made from an Ames Earth Resources Survey Aircraft from 45,000 feet altitude.

Ames Aircraft Aid Los Padres Fire Fight

Pictures made from an Ames high altitude research aircraft were used recently by fire officials in their efforts to stop a rampaging southern California brush fire which threatened to destroy the last remaining nesting area of the nearly extinct California Condor.

A NASA Earth Resources Survey Aircraft took off Aug. 23 to fly over the fire area. Pictures were in the hands of fire fighters shortly after noon.

Pictures were made in both black and white and in infrared color. The infrared transparencies, which penetrate smoke and haze to some extent, are useful in determining the exact perimeter of the fire, locating hot spots and "green islands" of vegatation which may flare up unexpectedly.

The black and white photographs show topographic detail which often does not show on maps. Moreover, the black and white pictures can be reproduced in quantity and given to individual fire crews for use in guiding them along the proposed fire line.

Flying altitudes are chosen to render pictures of the same scale as the maps used by fire fighters.

Earth Resources Survey Aircraft pictures were first used in fire fighting during the Molera fire in the Big Sur Area which burned more than 4,000 acres earlier this month. Fire officials said the pictures were valuable in planning strategy to be used to stop the spread of the fire. Photographs of the burned area are now being used to plan reseeding efforts.

New SPARCS Facility at Ames

(Continued from Page 1)

in the direction of the sun. After several seconds the rocket begins to fall back to the Earth where it is retrieved and reused.

The new structure, called the Vertical Air Bearing Test Facility, will house an instrument which will enable scientists and engineers to fully test the Aerobee's payload before it is assembled.

The instrument, called a roof-mounted heliostat, includes an equitorially-mounted clock-driven mirror that will track the sun's rotation around the Earth and reflect the sun's image down to the payload. The payload is mounted during testing on an air bearing in the center of the structure.

To allow SPARCS to correctly point the payload toward the sun's image the building must be rigidly stable with short-term vibrations of less than two arc-seconds.

To achieve this stability the walls and roof are specially designed for rigidity and mounted on a heavy concrete seismic-mass.

The Research Facilities and Instrumentation Division is building the new facility.

Hours Change For Army Lab

The Headquarters unit of the U.S. Army Air Mobility Research and Development Laboratory at Ames will permanently change their working hours to 7 a.m. to 3:30 p.m. beginning September 5.

The change in hours was made to allow coordination of work activities with the Army directorates on the East Coast.

10-Course Program

West Valley College is offering a program in supervision and management this fall. It is designed for those preparing for or currently holding their first supervisorial or managerial job in business, industry or a volunteer organization throughout the lower San Francisco Bay area.

Instruction begins the week of Sept. 11, registration will be held during the first class session.

Those interested in participating in the program should contact the Center for Supervision and Management at West Valley College, 44 E. Latimer Ave., Campbell, room L-22, or telephone 379-1733, ext. 28.

INNOVATORS . . . Tech Brief awards were presented to seven Ames researchers in an early morning ceremony in the Director's Conference Room recently. Tech Briefs announce to the public new technology derived from the U.S. space program. Award recipients are: (l to r, front row) Peter J. Haro, RSE; Louis Mazer, RKP; Donald R. Young, LTB; Nancy Smith of Ames' Technical Utilization Office; Clifford N. Burrous, FSV; William F. Barrows, PEF; Wayne H. Howard, LTB; Kenneth W. Billman, SVPA. Dr. Dale L. Compton (top right) Research Assistant to the Director, made the presentations.

Tech Brief award recipients not pictured are; Ronald J. Hruby, FSV; Ellis E. Whiting, FSV; John Billingham, LT; Phillip D. Quattrone, LTC; Thomas B. Fryer, RFD; Robert H. Meacham, RFTE; and Joseph M. Cambra, RKP.

SUMMER WORKERS . . . were honored at an "end-of-summer" dance and awards ceremony at Ames recently. The workers were participants in The President's Stay-in-School Campaign, the Summer Employment Program for Youth, and the Neighborhood Youth Corps In-School Program. Pictured above are three of eleven youths who received $25 and $50 U.S. Savings Bonds and plaques for their outstanding contributions. They are; Kathy Perkins (second from left), a $25 Bond recipient from the Summer Employment Program for Youth; and Josephine Tuilagi (far right) a $25 Bond recipient from the President's Stay-in School Campaign. Pictured with the students are Lester B. Briggs, (left) Assistant Chief of Ames' Personnel Division; and Louis H. Brennwald (third from left) Ames Director of Administration.

Summer Ends With Awards

Over 250 young people needing employment, job counseling, training, help or encouragement to stay in school, worked at Ames this summer.

Four federally funded youth employment programs at the Center were available to students with family incomes within a specified range. They are; the Summer Employment Program for Youth, the Neighborhood Youth Corps (NYC) In-School and Out of School programs, and the President's Stay-In-School Campaign

JOBS MATCHED TO STUDIES

The Ames Employee Development Branch in administering the programs makes every effort to match the employee's job with his or her academic interests. Students work in their chosen field to gain on-the-job experience whenever possible.

Willie L. White, Jr., coordinator of the programs for Ames said, "The programs were well received by both the students and the Ames staff and went beautifully. The responses were enthustiastic."

Ames Director Dr. Hans Mark, at a recent barbeque and dance, commended the student group and several of the outstanding youths were recognized for exceptional performance. Officials from Ames, Leonard Carter of the NAACP, Cole Richmond, president of the Palo Alto-Stanford NAACP were present for the presentations.

Recieving awards were; Linda Chen, a freshman at Foothill Junior College, Debra Coleman, a freshman at San Mateo Junior College, Cheryl Moore, a freshman at San Jose City College; Josephine Tuilagi, a freshman at San Jose City College; Albert Hill, a senior at Mountain View High School, Alvin Leach a participant of the Ames NYC Out-of-School program; Kathy Perkins of Mobile, Alabama; Jill Chikasuye, a senior at Fremont High School; Angie Valencia, a senior at Andrew Hill High School; Eli Soque a senior at Yerba Buena High School; and Rose Maldonado, a senior at Overfelt High School.

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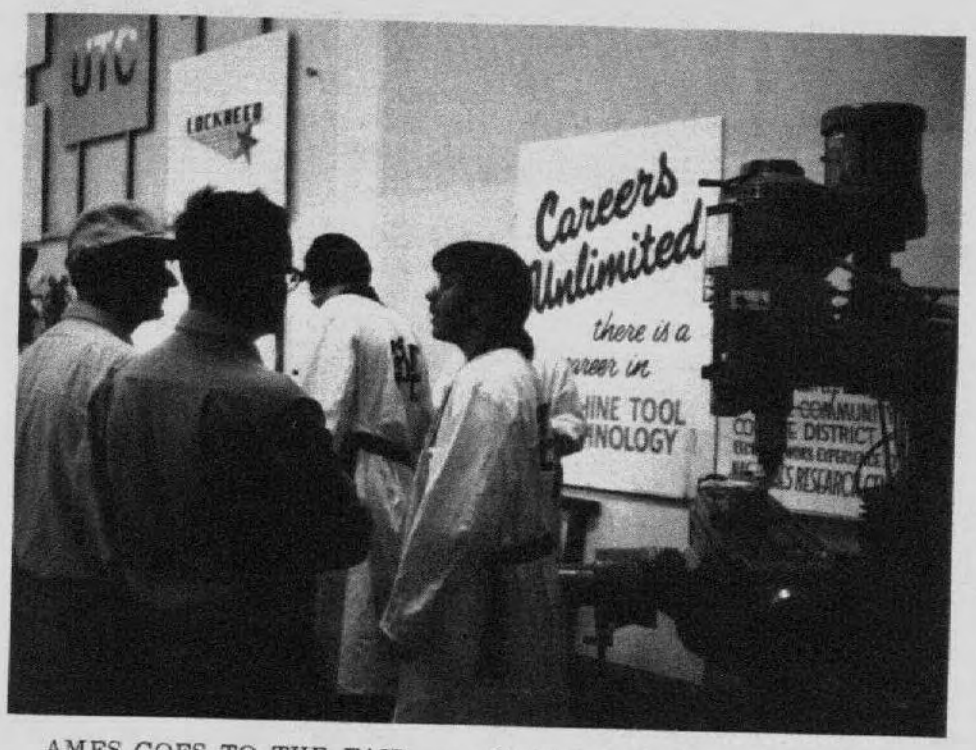

AMES GOES TO THE FAIR . . . Student-employees of Foothill Community College in training at Ames manned an exhibit at the Santa Clara County Fair to demonstrate the work they are doing at the Center. Gary Parola, (third from left with back to camera) and Gene Schoenberger (fourth from left) are pictured above as they prepare to operate a Tape Control Mill (a metal cutter) for an interested group of Fair-goers. Employed in Ames' Model and Instrument Machining Branch and the Metals Fabrication Branch, the students work 20 hours a week during the school year and 40 hours a week during vacations. Upon completion of the three-year program they receive an Associate of Arts degree from Foothill.

Mariner 9 Views Mars Satellites

(Continued from Page 1)

moons were seen by the ancient Greeks as horses pulling the war chariot, Mars, across the heavens.

According to Dr. Pollack, they are more like a couple of old nags. The satellites are small lumpy crater-pocked masses, probably as old as our solar system.

"They are so small, Phobos about 15 miles in diameter and Deimos half that, that the gravitational forces within them are not great enough to make them spherical," said Dr. Pollack during a recent interview.

"They reflect very little of the sunlight reaching them," he said. "So they are probably made of basalt or carbonaceous chrondite, a substance that some meteors are made of."

He explained that scientists were able to determine the approximate age of Mars and her satellites from the amount and types of craters on their surfaces. "We know from our own moon approximately how many impacts occur on the surface within a given period of time," he said. "We can deduce from this the age of the surface of Mars and the satellites by counting the number of craters.

"Several areas on the surface of Mars, such as large volcanic calderas, are quite young. Maybe only tens of millions of years old. The satellites are at least two to three billion years old, and probably formed at the same time as Mars."

Dr. Pollack hopes to further answer the questions; "Did the satellites originally form with Mars, or were they once part of the Asteroid Belt?" And, "What processes are currently shaping the surface of the satellites?"

From its eliptical orbit around Mars Mariner is mapping almost all of the planet's surface, and collecting detailed data about many specific regions. It is 1000 miles from Mars at its closest approach, and 10,000 miles at its farthest. Scientists eventually hope to make a three-dimensional model of Phobos and a nearly complete map of Mars from photographs returned.

Syvertson to Speak at Conference

C.A. Syvertson, Ames Deputy Director, will speak on the future of space exploration at the Annual Aerospace Conference Sept. 11 in the Disneyland Hotel, Anaheim.

Mr. Syvertson will discuss "Aviation's Role in Earth Resources Survey" during one of the conference's three technical sessions.

Low's Speech

(Continued from Page 1)

tell you about another activity which NASA has - a Convair 990 airplane used in airborne science and applications. I recently flew on a remote sensing mission in that airplane, an ocean color expedition carried out over the Atlantic. On board were 12 investigators, each with his own instruments, taking and recording data on ocean temperature, color, spectral reflectance and distribution, cloud cover, atmospheric conditions, solar conditions, etc. They used highly sophisticated, complex, modern instruments - spectrometers, photometers, radiometers, cameras, differential TV systems, imagers, and gas samplers - and worked as a highly integrated skilled team in carrying out a well organized mission. Together, they were responsible for 14 individual experiments. The conduct of the mission itself was most impressive, but the relative ease and simplicity in preparing for the mission was even more so. Let me first remind you that to do a mission like this in space would require three years lead time, large teams of people all over the country, countless reviews and meetings, endless stacks of paperwork, the most rigorous of tests, and enormous sums of money. By contrast, this airborne mission was conceived in February, just five months before the flight. We designated a project manager and a chief scientist. The chief scientist gathered a team of experts from government laboratories, from industry, and from universities. (All were funded by NASA.)

They arrived at our Ames Laboratory, with their completed instrument racks, two weeks before the initial flight in mid-June. The equipment was installed in the airplane, inspected by aircraft inspectors for good workmanship and proper attachment at hard points, and then turned on to make sure there was no electrical or electronic interference. These activities took ten days. An additional day was spent on a local checkout flight. Then the aircraft took off, with all of the investigators and the ground crew, on a data mission across the U.S. The next day we flew the mission in which I participated. On the following day, the airplane took off for the west coast of Africa, to rendezvous with a number of Soviet surface vessels, in a preplanned joint experiment on ocean color. I make this last point to demonstrate that this was not just a NASA research flight; it was a flight with pre-planned international commitments.

This kind of experience, as much as anything else, can teach us the way to drastically cut the costs of doing business in space."

In conclusion Dr. Low offered a dozen suggestions for conserving costs in the areas of design and implementation. They are:

DESIGN

1. Don't reinvent the wheel
2. Standardize
3. Design for low cost
4. Design to minimize testing and paperwork.
5. Recognize that different systems can accept differing degrees of risk.
6. Know your costs
7. Trade features for cost
8. Pay particular attention to the few very high cost items.

IMPLEMENTATION

1. Know your costs before you start.
2. Set firm cost targets
3. Meet the established cost targets

Herman Mark Describes China

Professor Herman F. Mark of the Brooklyn Polytechnic Institute spoke before a group of 200 Ames employees Aug. 18 on Science and Technology in China Today. Lecturing in the Main Auditorium, he discussed his recent two and a half-week visit to China.

Professor Mark, a leading Polymer Chemist, was invited to visit the Communist country by the Chinese Head of Science four days after President Nixon's Peking visit. The purpose was an informal exchange between American and Chinese scientists.

He visited many factories and laboratories. The laboratories he found, '. . . similar to laboratories in the U.S. about 20 years ago."

"The equipment, almost everywhere, however, is outmoded. There are a few exceptions ," he said.

Poking fun at his son, Ames Director Dr. Hans Mark, he said, "The Chairman of the Revolutionary Committee is about equivalent to our laboratory Director."

Describing life in China he said, "Necessities are expensive, while luxuries almost nonexistent."

Responding to a question about Chairman Mao's "little red book" he said, "You see them in hotels, but few people carry them. They treat them like we treat our Bible."

"Girls," he said, "are not allowed to marry until they are 25. Boys must be 27."

BOWLING

The Thursday night Ames Mixed Fives Bowling League begins its season on September 14. Start time will be 6:15 p.m. at Moonlite Lanes, Keily and El Camino.

An evening of bowling on Thursday night is guaranteed to do something for you. The spirit is uplifted; the inner person comes forth. Your entire weekend is brightened. You'll find yourself charging through the week just to get to that one night of zestful competition. Prizes and trophies abound.

Interested in joining? Call Charlie Middaugh at 5082 and he'll arrange everything.

GOLF

. . . by Kay Bruck

The winners of our last tournament were:

First Flight-1st place, Jack Lee and Ed Courtney; 2nd, Debbie Debevoise and Joe Quartuccio; Ben Beam and Vance Oyama came in 3rd.

Second Flight-1st place was a tie between Norm Martin and Don Davis and Don Humphry and Ed Maynard; 3rd, Ken Souza and Howard Garrison.

Third Flight-1st place, Bob Marraccini and Jessie Gaspar; 2nd, Bill Sutton and Conrad McCloskey; Harris Weaver and Stu Johnson tied with Kay Bruck and Yvonne Sheaffer for 3rd.

Next regular tournament is at DeLaveaga on Sept. 16.

BASKETBALL

Teams and persons interested in playing basketball in the All Ames Basketball League please call Bruce Ganzler at ext. 5169. The league will play its games at Sunnyvale High School on Wednesday evenings and will start play around the end of October.

Thank You

"To my NASA Coworkers and Friends,

On behalf of my family, I will take this means of expressing our sincere gratitude for your prayers, masses, contributions to charity and contributions of blood for my deceased Son Peter.

We find comfort in these words that Peter expressed when a loving friend or relative died and pass them on to you for your consideration;

To Live
In The Hearts
We Leave Behind
Is Not To Die

Sincerely Grateful
I remain,
Joseph M. Camp

DR KLEIN SPEAKS ON MARS RESEARCH

Dr. Harold P. Klein, Director of Life Sciences will discuss "The Coming Search for Life on Mars" at the Palace of Fine Arts Theatre in San Francisco, Sept. 5.

Dr. Klein will speak as a "special supplement" to the Cosmic Evolution Lecture Series.

Dr. Sherwood Washburn of U.C. Berkeley, will speak on "Evolution of Intelligence" Sept. 11.

RETIREE ADDRESSES

William Sarba
2311 Sutter Avenue
Santa Clara, CA. 95050

E. Shaw
16130 Greenwood Lane
Monte Sereno, CA. 95030

C. Shepard
983 Honfleur Court
Sunnyvale, CA. 94087

K. Sinclair
80 Glenn Way #15
Belmont, CA. 94002

V. Stevens
10415 Berkshire Drive
Los Altos, CA. 94022

L. Welspiel
1669 Lexington Street
Santa Clara, CA. 95050

L. Wilson
234 E. Arbor Avenue
Sunnyvale, CA. 94086

G. Knupp
166 Eldora Drive
Mt. View, CA. 94040

E. Harmon
272 La Pala Drive #1
San Jose, CA. 95127

Ray Stephen
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Santa Clara, CA. 95050

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Los Altos, CA. 94022

S. Whitaker
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Dufur, Oregon 97021

Bernice Christensen
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Sunnyvale, CA. 94086

Mr. and Mrs. Bonnel
1920 California Street #6
Mountain View, CA. 94040

M. Karas
2258 Cottle Avenue
San Jose, CA. 95125

R. Carpenter
2842 Concord Lane
Santa Clara, CA.

N. Oliva
805 Middle Avenue
Menlo Park, CA. 94025

Maxine Brown
1120 Phyllis Avenue
Mt. View, CA. 94040

WANT ADS

For Sale-66 Impala Supersport, 396 eng. Turbohydra., gd rubber, runs well, cln, $650. Call 253-6599.

For Sale-Lt. blue Ford Galaxie, 500; 65, 4-dr sedan, recent valve job & tune-up. cln., $600, John, 967-7459.

For Sale-70 Toyota Corona, auto. trans., am/fm, ex. mech. cond., $1450, 225-6427.

For Sale-61 TR 3, gd cond., gd tires, lug. rack. Recent eng. & trans. rebuild. Best offer, 241-5019.

For Sale-68 Ply. 8-Satellite. Auto trans, air cond, vinyl roof & many other extras, almost new radial tires & bat., 31000 miles, ex. cond. $1450, 941-8013.

For Sale-67 Volvo 1225, 2-dr 102,000 miles, very well preserved $600, Doug Pearson, 967-2970.

HOUSING

For Rent-Room in Mt. View, $60/mo. furnished, 961-6450 or 964-5425 after 6.

MISCELLANEOUS

For Sale-RCA 21" color TV console, fm/am stereo record plyr, gd cond. $225, 356-9695.

Wanted-3,5, or 10-spd bicycle in reprble cond. will pay to $20. 253-4475

For Sale-Crock, old-fash. fancy, 20 gal. ceramic. Lrge enough for dwarf tree, $30. 253-4475.

For Sale-Bicycles, 1 boys 26" small frame, like new $30; 1 girls 26", 3-spd, $35, 323-1582.

Lost-Mech. Eng. Design by Shigley, McGraw Hill, Ames Library No. T. J. 230 S 5-1963. If you have this bk. plse return it to me. I owe it to the Library. Gobets, x. 6217, 739-2787.

For Sale-Bx spring, dbl. bed size, Englander, firm, ex. cond. $40, call 378-6343.

Wanted-Package delivered to Lincoln, Ill. Anyone going that way in near future call 948-9590.

For Sale-4" Unitron Refractor w/ Edmonds Equatorial Mount & clock drive, $275. 5 1/2" f 5.1 Newtonian reflector w/ quartz mirror and diag. Edmonds deluxe wide angle finder & equatorial mount w/ clock drive. $225. Call 732-3559 after 5.

For Sale-Fiber glass sailboat 14' Jack Salmon, tilt trailer 3 sails, ex. cond. 253-7945.

For Sale-Blk naughyde couch, folds into 3/4 size bed, leg nds repair, but gd cond, $30. Slide projec., $10 100ths reading stpwatch, ex. cond. $25. Auto-Speed-Pacer set, complt all cards in order, ex. for T&D rally. $10, call 356-9247 after 5:30.

For Sale-T-bar clothesline, 4" stl tubing, 8 ft. lg inc. cement, dig a hole and set in. $20 pr. 257-7454

For Sale-Winch, Braden MU-2, PTO type, hvy dty, cable cap. 400 ft. 3/8 600 ft, 5/16 or 1000 ft 1/4. Used, reblt to new cond. $150 firm. Pickup rear step bumper, hvy dty w/tlr hitch ball and mount brack, new $45 H. Turner, 967-6188.

For Sale-Refrig., white, call after 5 p.m., 734-3368.

For Sale-42 BT 13 Consol. Vultee 2 seat trainer wartime w/ dual contr. own instru. Silver, 450 hp, p&w rad. eng. Fast becoming extinct, or regis. Ex. cond. $12000, 321-7451

For Sale-Honda 1971, CB-100 strt model w/ 800 miles. $325, call 252-3370.

For Sale-Yashica 8 mm, zoom mov. camera, bat powered, gd cond, $35 578-2676.

For Sale-Grant Mtrcycle helmut w/ bubble shield, lrg., ex. cond., $17.50 578-2676.

For Sale-Frigid. refrig. 13 cu. ft. pink, gd cond, 8 yrs old $100, 246-3590.

For Sal-2 saddle bags, mtrcy mgf BD Denfeld, black hvy lthr 10x5" ex. cond. $10 for pair. call 253-9398.

For Sale-Hydroplane 8', 3 pt factry made, 25 hp merc., trailer, coast guard orange, strng whl, race. throt. 5-gal gas tank, 50 mph, $350 firm, leave name & # for Don Gish at 967-1863 after 6 I will return call.

RECORDS ROUNDUP